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HOSACK, Alexander E.

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beneficial effects, of ether.  
New-York, 1847.

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OF  
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BY ALEXANDER E. HOSACK, M. D.

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[COMMUNICATED FOR THE BOSTON MEDICAL AND SURGICAL JOURNAL.]

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NEW-YORK:

GEORGE F. NESBITT, STATIONER AND PRINTER,  
Corner of Wall and Water Streets.

1847.



# CASES

ILLUSTRATIVE OF THE BENEFICIAL EFFECTS OF ETHER.

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BY ALEXANDER E. HOSACK, M.D.

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[Communicated for the Boston Medical and Surgical Journal.]

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As the administration of sulphuric ether as a preventive of pain in surgical operations has not yet obtained the entire sanction of the profession, I trust I shall be excused in offering the following cases, which, while they add numerically to the weight of testimony already in its favor, will serve to illustrate the peculiar effect of this wonderful discovery in some of the more severe operations of surgery.

CASE I.—December 20, 1846. I amputated a thigh, at the upper third, of an athletic young man, about 30 years of age, for a disease of the thigh bone involving the knee-joint; in other respects he was perfectly healthy. He breathed the ether for five minutes before he appeared to be fully under its influence. The operation was then performed, without the patient experiencing the least pain. He complained of a slight smarting, upon securing one of the smaller arteries (the principal arteries being tied), but not until the ethereal influence had passed off. The wound being dressed, he was placed in bed, where he slept comfortably the whole night. The following morning I found him cheerful and doing well. I then for the first time questioned him as to his sensation during the operation; whereupon he informed me that he had not experienced the slightest pain, but he was sufficiently conscious of all that was going on at the time. He knew when the thigh was transfixed by the knife, and when the bone was being sawed through, but had no disagreeable sensation from either. He has since perfectly recovered, after suffering from an attack of erysipelas of the stump during the healing process, but which circumstance may be regarded as purely incidental.

CASE II.—January 17th, 1847. This was a fungoid disease of the testicle, in a young man about 26 years of age. The disease was consequent upon injury received nine years previous. His constitutional health was not in the least impaired. He breathed the ether for five or six minutes, when etherization was complete, which while being produced was attended with the usual symptoms, such as flushed face, quickened pulse, accompanied with rigidity of the entire muscular system, apparently threatening convulsions—which, however, soon subsided, followed by a relaxed state. The operation was then begun, when the patient became very restless, and insisted upon getting up, and indeed acted like a drunken man trying to extricate himself from a scuffle. The operation soon being completed, and the wound dressed, the patient was placed in bed. He soon after assured me that he had not been aware of the least suffering. He was extremely cheerful, and quite delighted that the operation was over. In due time he perfectly recovered, without any untoward symptom, and with very little soreness or fever.

CASE III.—March 9th, 1847. I removed the breast of a healthy female about 40 years of age. She had been troubled with fibrous tumors for a year and upwards, attended with sharp and lancinating pains, and apparently involving the mammary glands. Fearing their contamination sooner or later, and it being also the wish of the patient, I determined upon the operation, which was accordingly performed immediately after etherization had been produced, which was fully effected after three minutes inhalation. The operation was completed without a struggle on the part of the patient, who, while having the wound dressed, observed a sprinkling of blood on my face, which seemed to engage her especial care, and she would not be satisfied until water was brought and the blood washed off. She was very loquacious and cheerful, telling of her delightful dream which had carried her back to her youthful pleasures. The dressing of the wound being completed, I suffered her to walk (as she insisted upon it) to her bed in the adjoining room, but after arriving there she refused to lie down, saying that she was perfectly well, and that nothing was the matter with her. Her attendant, in reasoning with her about being kept quiet, remarked, “you know you have had your breast removed,” whereupon she was very much surprised, saying it was not so, as she had felt no pain and had known nothing about it, therefore it could not be; and besides, it was to-morrow that the operation was to be performed. The nurse, however, failed to convince her, and not until my visit and assurance of the fact was she willing to credit it at all. The



wound healed entirely by the first intention, without the slightest exudation of matter, not even at the exit of the ligatures, which came away in due time, amounting to nine in all. I must not omit to mention that this patient dressed herself every morning after the third day, and without permission walked out upon the fifth day after the operation. I record these details to show the remarkable influence of the ether upon the healing process, for the breast removed was considerably larger than the usual size, and so slight was the inflammation after the operation, that the edges of the wound and the opening made by the passage of the sutures were scarcely reddened, nor was any part painful to pressure. The beneficial influence of ether in favoring the healing process, has frequently been observed and made mention of by others, but in no instance have I met with so flattering a result.

CASE IV.—March, 1847. I removed the breast of a lady for incipient carcinoma. In this case etherization was imperfectly produced, in consequence of a defect in the inhaler. She however informed me that she had imperfect sensations of pain, and was perfectly satisfied that her sufferings had been much less from her having taken the ether.

CASE V.—June, 1847. I performed the operation of lithotomy in a boy about 12 years of age. He had suffered from the irritation of stone for about three years. The ether in this case was inhaled between four and five minutes before a full effect was produced. The operation was then performed, the little patient the while continuing to talk incoherently, as of boys taking his marbles from him, and his throwing stones at them, at the same time making a noise and struggling to get loose, and indeed was so restless as to interfere with and protract the operation. After it was completed, the patient was placed in bed. He never complained of pain, slept comfortably at nights, and has perfectly recovered in the usual time, without experiencing the least fever.

CASE VI.—July 9th, 1847. This was a case of strangulated femoral hernia, in a lady about 43 years of age. After trying the ordinary means of reducing the tumor, I determined to make an attempt, before resorting to the operation, of the relaxing influence of etherization, which being effected, the hernial tumor was replaced without the slightest difficulty. From this single instance of success, I do not hesitate to recommend the inhaling of ether as an additional means to the taxis in cases of irreducible or strangulated hernia.

By accurate observation of the effect of ether in the foregoing cases, as well as in other operations of less importance, I am decidedly of the

opinion that it is the same in all instances as to the destroying of sensibility to pain, but the apparent effect upon the mind is very different. In the instance of amputation of the thigh, in case first, the patient stated that he had most pleasing sensations and was perfectly happy, and he remained perfectly quiet. He knew all that was going on about him, heard the remarks made at the time by those present, knew when the knife was introduced to make the flaps, knew when the bone was being sawed through, and when the vessels were taken up; still, as he remarked to me, he had yet to feel the first smart.

In the second case the patient was extremely restless, and acted with the pertinacious obstinacy of a drunken man, insisting upon getting up, He was nevertheless unconscious of the operation having been performed, and suffered no pain, as he assured me he had not realized any.\*

In the third case the patient was perfectly quiet during the whole time of the operation, indulging in delightful reveries, fancying herself (as she afterwards told me) at home with her friends, and struggling to get through a gate which she could not open wide enough to pass through. With her it was a complete delusion; for some time after her consciousness had returned, she was entirely incredulous of the operation having been performed, and not until assured by me of the fact was she willing to admit it. I have recurred to these instances to show how different the effect of etherization is upon the minds of different persons, independently of its benumbing influence upon the sentient part of nerves.

The great and important questions the profession have to determine, are—first, when is etherization fully established? Secondly, by what means are we to guard against its fatal effects? Thirdly, is the danger of serious consequences common to all who inhale it? or do those only incur danger who inhale more than is necessary to produce insensibility to pain? If these questions cannot, in the process of time, be satisfactorily determined, the fatal effects must then be set down to chance, or as acting differently upon different constitutions, making a rare exception comparatively to the general rule; in which event we have to enter into

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\* A similar instance, and under similar circumstances, occurred in the practice of Dr. J. K. Rodgers, in which the patient supposed himself fighting with "ten thousand devils," as he afterwards expressed himself, in speaking of its effect, but he was not conscious of pain. In another instance, when Dr. Rodgers amputated the thigh, the patient made no expression of any kind until the bone was being sawed through, when he screamed to the height of his voice; and upon being interrogated after the operation, as to his sensations, he said he had not experienced the least pain, but imagined himself seized by some butchers, who were cutting off his arm, which I think was a dream arising from the last impression upon his mind previous to the operation.

a calculation of the good to be derived by the inhaling of ether, in the saving of human life by preventing the shock to the system in the severer operations performed, when called for from accident or injury; or when the operation is itself of a magnitude to make so serious an impression upon the mind. Every surgeon who has witnessed the effect of the ether in preventing pain in a severe operation, must admit that the patient has escaped the severity of the shock. This benefit is evinced by the comparative slight fever that follows, by the diminished suffering from the wound, and, above all, by the moderation of inflammation during the healing process. This lessening of the shock, then, being not the least of the benefits derived from the inhaling of ether, should be properly estimated, and the lives thus saved should be placed as an offset against the comparatively few instances of death ensuing from the inhaling of ether.

It therefore behooves us to ascertain to what extent we can administer, with safety, the ether, before producing that precise state of insensibility to pain beyond which it is unnecessary to go. According to my observation, the inhaling of ether should be discontinued the moment the patient shall have passed through the only symptoms as yet known to us by which we are to judge that etherization has been fully effected; and these symptoms I deem to be essential for its complete effect. It may be accomplished in three minutes, or it may require seven or eight; beyond that period I should be unwilling to continue the effort, unless by allowing the patient to repose a few minutes, when the attempt might be renewed. These essential symptoms are as follows:—flushed face, dilated pupils, increased action of the pulse, relaxation of the entire muscular system. The latter may or may not be preceded by rigidity, but it is frequently the case. When relaxation of the muscles throughout is established, the saliva will flow from the angles of the mouth, which circumstance I am inclined to regard as the best evidence, when it follows the other signs, that etherization is fully and completely established. At that moment farther inhalation should be discontinued; at all events until the first step, or the severer part of the operation, shall have been completed, when upon the re-animation of the patient, an occasional whiff or two may be taken, and which I have always found quite sufficient to re-establish the insentient state. By some recent experiments made by my friend, M. Amussat, of Paris, upon the inhalation of ether by animals and man, he establishes the fact that animals die from the continuance to inhale ether after the insentient state has been fully effected. Upon the

examination of an animal killed by breathing the ether, he discovers that death has been caused by asphyxia, the different viscera presenting the same appearance as when death follows from breathing the carbonic acid gas. In both instances the blood is deprived of oxygen, and presents a dark tar-like appearance.

*New York, July, 1847.*







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Hosack, A.E.

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